

ABSTRACT OF THE DISCLOSURE

[113] One or more bus bridges are used to partition a large I²C bus into smaller bus segments. By programming address bitmaps that are internal to each bridge, the various bus segments can be made to appear as one logical bus. In addition, the bus topology can be designed to maximize the ability to isolate faults within a given segment, thereby improving the ability of technicians to diagnose problems in very large I²C implementations. In one embodiment, the invention is a unidirectional bus bridge which is designed so that two such bridges can be used in parallel (facing in opposite directions) to implement a fully bi-directional bus bridge. In another embodiment, I²C slave addresses are replicated in a single logical I²C bus by addressing a tunnel command to a bridge, which command contains an address and causes the bridge to which it is addressed to forward the contained address.